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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,347	12/15/2003	Joel D. Limmer	I69.12-0612	4641

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EXAMINER

CAO, ALLEN T

ART UNIT PAPER NUMBER

2627

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/736,347	<b>Applicant(s)</b> LIMMER ET AL.	
	<b>Examiner</b> Allen T. Cao	<b>Art Unit</b> 2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-9,11,13,14,16,18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1,3,5-9,11,13,14,16,18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. Claims 3 and 5 are objected to because of the following informalities:

a) The phrase "claim 2" in claims 3 and 5, line 1 should be changed to –claim 1— because claim 2 had been cancelled.

b) The phrase "claim 15" in claims 16 and 18, line 1 should be changed to –claim 14—because claim 15 had been cancelled.

Appropriate correction is required.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 6-7, 9, 11, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Budde et al (US. 5,896,246).

Budde et al discloses an actuator for data storage devices having an actuator arm 60 having a proximal end and a distal end, the actuator arm being rotatable in a rotational plane for supporting a transducer with respect to a data storage medium; and a head gimbal assembly (62, 64 and see also figure 3) connected to the distal end of the actuator arm at an inclined angle with respect to the rotational plane of the actuator, wherein the head gimbal assembly comprises a loadbeam 14 having a proximal region 12, a distal region 14, and a hinge region 30 between the proximal region and the distal region; a slider 50 for carrying the transducer, wherein the slider inherently includes an air bearing surface (figure 4); and a gimbal 16 connecting the slider to the distal region of the loadbeam, all as set forth in claims 1, 9 and 14.

Regarding claims 3, 11 and 16, Budde et al discloses that the head gimbal assembly comprises a base plate 12 at the proximal region of the load beam.

Regarding claims 6 and 14, Budde et al discloses that the actuator arm includes a mounting block (figure 6, discloses a angled mounting block to mount the head gimbal assembly) having an angled surface.

Regarding claim 7, Budde et al discloses that the mounting block is positioned on both sides of the actuator arm that is facing the data storage medium.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Budde et al in view of Gill et al (US. 5,561,570).

Regarding claim 19, Budde et al does not clearly disclose that the weight of the load beam and the slider will be created a permanent bend in the hinge region so that a portion of the head gimbal assembly assumes a concave shape facing away from the data storage medium.

Gill et al discloses an actuator for data storage devices, the actuator comprising an actuator arm 160 having a proximal end and a distal end, the actuator arm being rotatable in a rotational plane for supporting a transducer 133 with respect to a data storage medium 200; and a head gimbal assembly 130 connected to the distal end of the actuator arm 160 at an inclined angle with respect to the rotational plane of the

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actuator arm (see also figures 4A-5), all as set forth in claims 1 and 9. Gill et al also discloses that the head gimbal assembly is concave in a direction facing away from the disc (see figures 4B and 5) as recited in claims 9 and 19.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the load of the load beam and the slider of Budde et al such that creates a permanent bend in the hinge region so that a portion of the head gimbal assembly assumes a concave shape facing away from the data storage medium as set forth in claim 19, as taught by Gill et al to reduce the inter-frictional/pushes force between the actuator assembly and the media, thus improving the dynamic loading effect and flying height characteristics of the slider in order to improve the read/write characteristics of the head.

6. Claim 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Budde et al in view of Maruyama et al (US. 5,898,540).

Budde et al does not disclose a wedge as set forth in claim 8.

Maruyama et al discloses a disk drive having a wedge 5-5 (figure 21c) with a planar surface and an angled surface; wherein the actuator arm 4 is attached to the planar surface of the wedge and the head gimbal/suspension assembly 7 is attached to the angled surface of the wedge.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the actuator assembly of Budde et al with the wedge as set forth, supra as taught by Maruyama et al.

The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the actuator assembly of Budde et al with the wedge as set forth, supra as taught by Maruyama et al to reduce the inter-frictional/pushes force between the actuator assembly and the media, thus improving the dynamic loading effect and flying height characteristics of the slider in order to improve the read/write characteristics of the head.

7. Claims 5, 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Budde et al and Maruyama as applied to claims 1, 9 and 14 above, and further in view of Davis et al (US. 6,778,362 B1).

Regarding claims 5, 13 and 18, Budde et al as modified by Maruyama does not disclose a notch as recited.

Davis et al, figures (9B and 9C) discloses an actuator assembly having a head suspension assembly 160 including a load beam 166 including a hinge region 180 comprising a notch 164 as recited.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the head gimbal assembly as set forth of Budde et al as modified by Maruyama with a notch as set forth, supra as taught by Davis et al to provide high torsion frequencies and high sway frequencies and low spring rate to improve flying characteristics.

### ***Response to Arguments***

8. Applicant's arguments filed 1/17/06 have been fully considered but they are not persuasive.

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9. Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen T. Cao whose telephone number is (571) 272-7569. The examiner can normally be reached on Mon - Thurs (7:30 - 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Allen Cao', with a long horizontal line extending to the right.

Allen Cao  
Primary Examiner

AC  
March 23, 2005